

Duct Averaging Temperature Sensor

Active sensor (0...10 V) for measuring the averaging temperature in duct applications. IP65 / NEMA 4X rated enclosure. Supplied with one continuous sensing element across the whole length of the probe to ensure optimum accuracy and eliminate air stratification problems.


Type Overview

Type	Output signal active temperature	Probe length
22MT-524	DC 0...5 V, DC 0...10 V	10 ft [3 m]
22MT-525	DC 0...5 V, DC 0...10 V	20 ft [6 m]

Technical Data

Electrical Data	Power supply DC	15...24 V, ±10%, 0.4 W		
	Power supply AC	24 V, , ±10%, 0.8 VA		
	Electrical connection	Removable spring loaded terminal block max. 2.5 mm ²		
	Cable entry	Cable gland with strain relief Ø6...8 mm (1/2" NPT conduit adapter included)		
Functional Data	Multirange	8 measuring ranges selectable		
	Output signal active note	output DC 0...5/10 V with jumper adjustable voltage output: min. 5 kΩ load		
	Application	air		
Measuring Data	Measuring values	temperature		
	Measuring range temperature	Active sensor: range selectable Attention: max. measuring temperature is restricted by max. fluid temperature (see Safety data)		
	Setting	range [°C]	range [°F]	Factory setting
	S0	-50...50°C	-30...130°F	
	S1	-10...120°C	0...250°F	
	S2	0...50°C	40...140°F	
	S3	0...250°C	30...480°F	
	S4	-15...35°C	0...100°F	
	S5	0...100°C	40...240°F	
	S6	-20...80°C	40...90°F	✓
	S7	0...160°C	0...150°F	
	Accuracy temperature active	±0.9°F @ 70°F [±0.5°C @ 21°C]		
	Time constant t (63%) in the air duct	typical 100 s @ 0 m/s		

Materials	Cable gland	PA6, black
	Housing	cover: lexan, orange base: lexan, orange seal: 0467 NBR70, black UV resistant
Safety Data	Ambient humidity	max. 95% r.H., non-condensing
	Ambient temperature	-30...120°F [-35...50°C]
	Fluid temperature	-60...175°F [-50...80°C]
	Housing surface temperature	max. 160°F [70°C]
	Protection class IEC/EN	III protective extra-low voltage (pelv)
	Protection class UL	UL Class 2 Supply
	EU Conformity	CE Marking
	Certification IEC/EN	IEC/EN 60730-1
	Certification UL	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1:02/-2-9
	Degree of protection IEC/EN	IP65
	Degree of protection NEMA/UL	NEMA 4X
	Quality Standard	ISO 9001

Safety Notes


This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application. Unauthorised modifications are prohibited. The product must not be used in relation with any equipment that in case of a failure may threaten humans, animals or assets.

Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.

The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Remarks
General Remarks Concerning Sensors

When using lengthy connection wires (depending on the cross section used) the measuring result might be falsified due to a voltage drop at the common GND-wire (caused by the voltage current and the line resistance). In this case, 2 GND-wires must be wired to the sensor - one for supply voltage and one for the measuring current.

Sensing devices with a transducer should always be operated in the middle of the measuring range to avoid deviations at the measuring end points. The ambient temperature of the transducer electronics should be kept constant. The transducers must be operated at a constant supply voltage (± 0.2 V). When switching the supply voltage on/off, onsite power surges must be avoided.

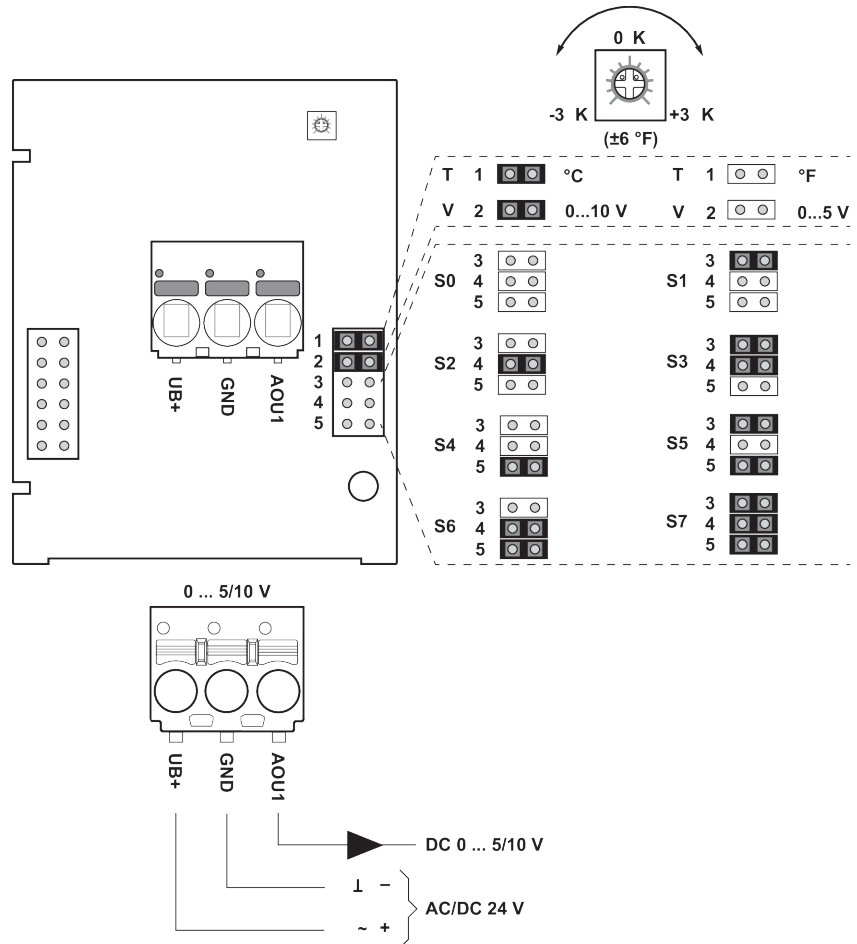
Build-up of Self-Heating by Electrical Dissipative Power

Temperature sensors with electronic components always have a dissipative power which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. This dissipative power should be taken into account when measuring temperature. As Belimo transducers work with a variable operating voltage, only one operating voltage can be taken into consideration, for reasons of production engineering. Transducers 0...10 V / 4...20 mA have a standard setting at an operating voltage of DC 24 V. That means, that at this voltage, the expected measuring error of the output signal will be the least. For other operating voltages, the offset error will be increased by a changing power loss of the sensor electronics. If a re-calibration should become necessary later directly on the sensor, this can be done by means of a trimming potentiometer on the sensor board.

Scope of delivery

Scope of delivery	Description	Type
	Mounting plate S housing	A-22D-A09
	Mounting kit, with mounting brackets	A-22D-A08
	1/2" NPT conduit adapter	

Wiring Diagram

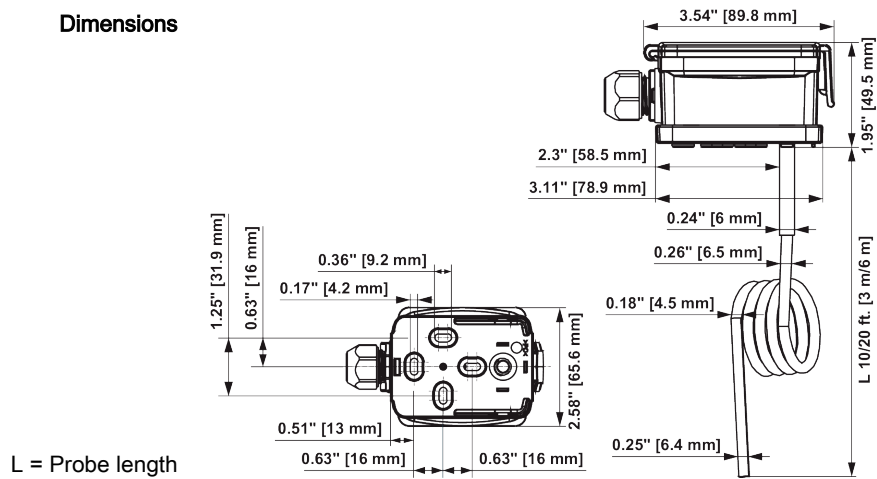


The adjustment of the measuring ranges is made by changing the bonding jumpers. The output value in the new measuring range is available after 2 seconds.

Setting	range [°C]	range [°F]	Factory setting
S0	-50...50°C	-30...130°F	
S1	-10...120°C	0...250°F	
S2	0...50°C	40...140°F	
S3	0...250°C	30...480°F	
S4	-15...35°C	0...100°F	
S5	0...100°C	40...240°F	
S6	-20...80°C	40...90°F	✓
S7	0...160°C	0...150°F	

Dimensions

Dimensions



L = Probe length

Type	Probe length	Weight
22MT-524	10 ft [3 m]	0.49 lb [0.22 kg]
22MT-525	20 ft [6 m]	0.62 lb [0.28 kg]